

VAMC Overhead Paging System Specification (2013 Revision)

Overhead (loudspeaker) Paging Specification for: New Installations, Replacement, Remodel

Prepared For:
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The information contained in this specification shall be considered guidelines for installing or replacing paging amplifiers, ceiling speakers connected to amplified paging equipment, cabling, and inter-systems connections used for general overhead paging and is not a specification for speaker installations associated with emergency signaling such as fire alarm, health care codes, or emergency evacuation signaling. MCS takes no responsibility for damages of any kind due to improper installation of signaling equipment. Code compliance is the responsibility of the installing contractor.

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Section 1 Statement of Intent, Responsibility, and Compliance

1.1 Intent

It is the intent of this Specification to provide Contractors with a list of the minimum required hardware and specifications to complete the overhead paging requirements of construction projects. Contractors are required to verify required materials. Any items not specifically mentioned but necessary to complete the work are the responsibility of the Contractor.

1.2 Responsibility

The Contractor is responsible for providing all necessary equipment, materials, labor, and on-site project management services necessary to complete the work within the specified project schedule. The Customer may provide independent project management to monitor the installation activities and manage the project schedule at the Contractor's expense. The Contractor is responsible for compliance of all existing codes and standards whether referenced in this Specification or not.

1.3 Compliance

All installation procedures shall comply with Customer installation requirements and conform to existing standards. The Contractor shall also comply with all Local, State, and Federal ordinances and codes as well as the National Electric Code. Reconciliation of compliance violations shall be the responsibility of the Contractor. If the Contractor fails to reconcile the violation, the Customer may reconcile the violation at the Contractor's expense.

1.4 Fire-Stop Compliance

The Contractor is expected to properly fire-stop sleeves throughout the project. Cable pulls shall be coordinated to maintain compliance with all applicable standards.

1.5 Terms and Conditions

This overhead paging specification shall be considered an attachment of a master construction specification and shall not include any specific contract terms other than the technical specifications herein. Costs, schedules, terms of payment, and legal terms are not part of this overhead paging specification but shall be part of the master construction specification that it is attached to.

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Section 2 General Specifications for Overhead Paging

2.1 Cable

- 2.1.1 Provide 16/2 shielded speaker cabling for all horizontal cable runs (red/black or white/black).
- 2.1.2 Provide reusable wire-nut type connectors for all connection points.
- 2.1.3 Bond the drain lead (ground lead) at all connection points.
- 2.1.4 The black lead shall be the common lead. White or red is the 70 volt lead.
- 2.1.5 Provide cable support as required to keep cabling off ceiling tiles and to protect cabling from damage.
- 2.1.6 Provide any additional hardware and services as required.

2.2 Back Boxes and Bridges

- 2.2.1 Back boxes and tile bridges shall be used for every speaker. Material shall comply with fire code ratings for the specific ceiling design (plenum or non-plenum type).
- 2.2.2 Speaker leads shall be 3 feet inside of the back box to allow the speaker to be dropped onto a ladder for maintenance.

2.3 Speakers

- 2.3.1 Ceiling speakers shall be 8"-10" round type with a 12" to 14" grille plate.
- 2.3.2 Speakers shall be 70 volt type with 8 oz. to 10 oz. magnets and multiple tap options and recessed volume controls.
- 2.3.3 Unless specifically requested by the Customer, all speakers shall be tapped for 1 watt and set to ½ volume control.
- 2.3.4 The back-box shall be marked with the speaker tap setting.

2.4 Amplifiers

- 2.4.1 Amplifiers shall be provided for all buildings that require paging.
- 2.4.2 Amplifier size shall be calculated using the following method. Ceiling speakers = 1 watt each. Horns = 5 watts each. Total speaker and horn wattage times 2 = amplifier minimum rating.
- 2.4.3 Amplifiers shall have multiple inputs consisting of; 1-low impedance microphone, 1-balanced 600 ohm, 1-auxiliary.

2.5 Amplifier Interconnections

- 2.5.1 If required, connections between the main B111 amplifier and remote amplifiers shall be as follows:
 - A. For connection <1000' a balanced telephone line connection using required B111 pre-amp hardware.
 - B. For connections >1000' an IP interface using existing fiber optic data connectivity.
- 2.5.2 The Contractor is required to obtain approval for equipment type and provide and install all interface equipment.
- 2.5.3 Connections to existing B111 equipment shall be under the supervision of the Customer at the contractor's expense.
- 2.5.4 Interconnection equipment shall not draw more than 1 watt from the B111 equipment.

2.6 Verifying Pre/Post Construction Wattage Ratings (Remodel Areas)

- 2.6.1 Prior to demolition, speaker leads feeding the area shall be tested with wattage calculating impedance meters to determine the total wattage draw of the pre-demolition speakers. After completion of the construction, the area shall be tested again to verify that the wattage draw. If it is necessary to increase the amount of speakers for coverage purposes, the Customer shall be notified of the change in wattage draw.
- 2.6.2 If it is determined that pre-demolition speaker coverage is not sufficient and additional speakers are required, changes to the tap setting policy (2.3.3) may be permitted by the Customer only.
- 2.6.3 During construction, existing speaker feed wires shall be cut and capped to prevent shorting the leads which affects the amplifiers and total system performance.

2.7 Speaker Coverage

- 2.7.1 Speakers shall be spaced using the following formulas:
 - A. For hallways multiply the ceiling height by 2. (8' ceiling X 2 = 16' spacing).
 - B. For larger rooms multiply the ceiling height by 20 to determine the maximum square footage of coverage per speaker. (8' ceiling X 20 = 160 sq. ft. / speaker or 16' spacing).

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Section 3 Inspection and Acceptance for Overhead Paging

3.1 Demolition of Existing Equipment

- 3.1.1 Removal of existing speakers and equipment in preparation for renovation of an area shall be coordinated with the Customer to ensure integrity of the speaker cabling system. Care shall be taken not to short the main speaker lead serving the area under renovation.

3.2 Testing and Documentation

- 3.2.1 Upon completion of installation, as-built drawings and technical documentation shall be provided that show speaker placement, tap settings, and total wattage draw for each area. Wattage draw values shall be based on meter readings, not by just adding up the tap settings. Locations of splices shall also be indicated.
- 3.2.2 If installed, amplifier volume and control settings shall be documented. A copy of the amplifier and all other equipment manuals shall be included with the documentation package.

3.3 Final Connections

- 3.3.1 Customer shall be notified and present when the final connections are made.
- 3.3.2 Testing of system with Customer present is mandatory.

3.4 Acceptance

- 3.4.1 Upon inspection and testing of all components, wiring, wiring methods, and compliance, the system will be accepted as installed. This acceptance does not relieve the Contractor from warranty or compliance responsibilities should a defect in materials or workmanship be found at a later date.